

**BY ORDER OF THE COMMANDER
AIR FORCE MATERIEL COMMAND**

**AIR FORCE MATERIEL COMMAND
INSTRUCTION 21-165**



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Maintenance

***AIRCRAFT FLYING AND
MAINTENANCE SCHEDULING***

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This instruction establishes Air Force Materiel Command (AFMC) policy, and implements the intent of AFPD 21-1, *Air and Space Maintenance*, AFI 21-101 AFMC Sup1, *Aircraft and Equipment Maintenance Management*, AFI 11-101, *Management Reports on the Flying Hour Program*, and AFI 11-102, *Flying Hour Program Management*. It establishes policy and assigns responsibility for the Operations Group (OG) and Maintenance Group (MXG) commanders (or equivalents) to develop and execute aircraft flying and maintenance programs. Air Logistics Center (ALC) depot operations that maintain aircraft, aircraft systems, equipment, support equipment, and components are excluded from this instruction, and will follow AFI 21-101 AFMC Sup1. For waiver and exemption actions see paragraph 1.5. Throughout this supplement, the civilian equivalent (unless no civilian may hold the position) may be applied to any reference to a military rank, grade or position. Throughout this supplement, any reference to a specific organizational structure implies “or equivalent organization.” Except for implementing the organizational structures, contractors supporting AFMC flying and/or maintenance operations are required to implement the intent of this *Aircraft Flying and Maintenance Scheduling* guidance. All AFMC Centers and subordinate units operating and/or maintaining aircraft must implement this guidance unless exempted by HQ AFMC. This instruction applies to the Air National Guard and U.S. Air Force Reserve units and members performing direct support to AFMC mission activities. Units will publish local directives mandated by AFI 21-101 and this instruction. Supplements will not lessen the requirements nor change the basic content or intent of this instruction. Units developing separate instructions based on requirements set forth in this instruction will follow guidance in AFI 33-360, *Publication and Forms Management*. Refer

recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) to afmc.a4m.workflow@wpafb.af.mil (AFMC/A4M Workflow) or HQ AFMC/A4M, 4375 Chidlaw Rd, Bldg 262 C114 WPAFB OH 45433-5006 using the AF IMT 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>.

SUMMARY OF CHANGES

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Chapter 1

GENERAL RESPONSIBILITY AND POLICY

1.1. Goals and Objectives. The goal of this instruction is to provide the most effective guidance for unit planning and execution of operations flying and maintenance scheduling activities in support of the AFMC flying hour program. The objectives of this guidance are to:

1.1.1. Provide methods for units to develop and improve their flying and maintenance scheduling programs.

1.1.2. Provide audit methods so that units may analyze their effectiveness.

1.1.3. Provide methods for local commanders, and the MAJCOM, to assess effectiveness of unit performance in schedule planning and execution.

1.2. Policy. This instruction provides procedures and audit methods for units to develop their flying and maintenance scheduling program and analyze their effectiveness. It is intended to be a local tool for operations and maintenance activities to use in support of their programs. Reviewing flying and maintenance schedule deviations, and the reasons for those deviations, allows wing commanders (WG/CC) and their staffs/subordinates to evaluate unit flying program and scheduling procedures for efficiencies and effectiveness. Higher Headquarters (HHQ) management attention is directed to those areas beyond a unit's control.

1.3. Applicability. This publication is applicable to all AFMC Centers and activities possessing, flying or supporting aircraft, to include contractor maintained operations.

1.4. Standardization. Wings will develop a supplement to this instruction standardizing attrition rate, spare factors and scheduling practices for the wing and each assigned mission design series (MDS). Minimum topics should include quiet hour policies, cross country takeoffs and returns, minimum turn times, crew ready times, etc. Supplements will include local schedule input and publishing deadlines along with any wing unique requirements.

1.5. Waivers. The MXG/CC or group designee will coordinate on waiver requests for this instruction. Send waiver requests or proposals to change this instruction to HQ AFMC/A4M for action. Unit requests for waivers must contain justification why the unit cannot comply with the existing guidance, actions taken to achieve compliance, and expected date of compliance. Test or trial programs that deviate from this instruction are not authorized without prior approval from HQ AFMC/A4M. Those affecting organizational structure will also be coordinated through local manpower office IAW AFI 38-101, *Air Force Organization*.

1.6. Responsibility. The terms maintenance operations and operations flight in this instruction refers to Aircraft Maintenance Squadron (AMXS) maintenance operations officer (MOO) or superintendent (SUPT), Equipment Maintenance Squadron (EMS) maintenance operations officer or superintendent, Component Maintenance Squadron (CMS) maintenance operations officer or superintendent, Maintenance Squadron (MXS) maintenance operations officer or superintendent, and/or Maintenance Operations Squadron (MOS), Maintenance Operations Flight (MOF), commander or superintendent, Operations Group (OG), Operations (OP or OPS), Operations Squadron (OS) and Operations Support Squadron (OSS).

1.7. Reporting Requirements. Flying scheduling deviation recording and reporting is required for all AFFTC and AAC possessed aircraft while status, inventory, and utilization reporting is

required for all AFMC units and activities possessing or supporting AFMC possessed aircraft to include those possessed for the AFMC mission by contractors.

1.7.1. Reporting procedures are contained in **Chapter 3** of this publication. Operations, maintenance, test agencies, and others share in the responsibility for monitoring and controlling deviations. Schedule deviations altering the planned use of resources generally have a domino effect that upsets future and near-term events. Every effort must be made to reduce or eliminate deviations.

1.7.2. Units will use approved Maintenance Information System (MIS) reporting procedures. This includes contractor-maintained, AFMC assigned and possessed aircraft. In the event that the contractor is not obligated to utilize the MIS, the MXG commander or equivalent is responsible to ensure all reporting procedures are complied with. C

Chapter 2

FLYING AND MAINTENANCE SCHEDULING PROCEDURES

2.1. Purpose. This chapter defines flying and maintenance scheduling procedures which all test units will comply with. The objective of the flying and maintenance planning cycle is to execute the wing flying hour program (FHP) consistent with operational and test requirements (AFI 11-102, *Flying Hour Program Management* and AFI 11-101, *Management Reports on the Flying Hour Program*) and maintenance capabilities (AFI 21-101 AFMC Sup1). These procedures enhance operations and maintenance interface. The flying and maintenance planning cycle begins with the annual allocation of flying hours no later than 1 August of each year for the following fiscal year. Maintenance schedulers must understand test and operational needs to determine supportability. Likewise, operations schedulers must consider maintenance capabilities. Maintenance and operations schedulers will develop a proposed annual flying plan balancing both operational and test requirements and maintenance capabilities. The annual plan, detailed by month, will evaluate the capability of maintenance to support the annual flying hour program. The plan will be coordinated and consolidated by OSS Operations Flight scheduling and forwarded to the Operations Flight commander, AMXS/CC and AMXS/MOO, MOS/CC, MOF/CC and MOF PS&D. The printed wing plan will include an assessment of the wing's ability to execute the flying hour program. The plan will be coordinated with the OG/CC and MXG/CC before being approved by the WG/CC. Commit the fewest number of aircraft possible to meet flying goal. The annual plan is further refined into quarterly/monthly operations and maintenance plans and then into weekly schedules using the guidelines contained in the following paragraphs.

2.2. First Look. The maintenance planning cycle ensures proper and effective use of maintenance resources. Maintenance schedulers use both maintenance and operational long-range planning to assess maintenance's ability to support the wing flying program, Programmed Depot Maintenance (PDM) schedules, Time Compliance Technical Order programs, scheduled inspections and exercises. PS&D or equivalent will perform the long range planning function and uses MIS products such as time distribution index (TDI), planning requirements (PRA), and workable TCTO report (WTR) to determine long range maintenance requirements. PS&D will forecast and monitor requirements for the planned fiscal year. Maintenance requirements are included in long-range plans to project aircraft availability.

2.2.1. Every year, on or about 15 March, MOF PS&D will request Maintenance Management Analysis (MMA) accomplish airframe, personnel, and facility capabilities for each AMU based on historical data to start the First Look requirements. The capabilities are due back to MOF PS&D no later than (NLT) the last workday of March.

2.2.2. MOF PS&D will provide copies of the capability study to each Operations Squadron (OS) operations scheduling and maintenance supervision. AMU PS&D will refine the initial MMA airframe capability by applying projected maintenance requirements to the historical data. AMU PS&D will provide first look maintenance capability projections in a monthly format to OS operations officer, AMU OIC/ NCOIC, AMXS/CC/MOO, and MOF PS&D by 15 May. Projections include known operational and test requirements, an assessment of maintenance's ability to support the monthly contract requirements, and an overall assessment of the unit's maintenance capability to meet the annual flying hour program.

2.2.3. MOF PS&D will gather the AMXS and OS coordinated operational capability and forward them to OSS Operations Flight scheduling section for consolidation into a comprehensive package that includes a breakdown of the following items by OS/AMU:

2.2.3.1. Sorties contracted/scheduled per day. Compute the number of sorties (hours) required per operations and maintenance (O&M) day to meet the operational and test requirement using the formula: Number of sorties (hours) required divided by number of O&M days in a given month. Sorties (hours) per day will be computed by month for each operational squadron/AMU.

2.2.3.2. Monthly scheduled sorties. Compute monthly scheduled sortie requirements using the formula: (Number of sorties or hours required) divided by (1 minus the attrition factor). Example: 1,000 sorties or hours required divided by (1 minus 0.15) equals 1,177 sorties or hours to schedule. Remember to round any part up to the next whole sortie or hour.

2.2.3.3. Inspection dock capabilities. Compute the number of Phases/ISO inspections to be accomplished in order to meet operational and test requirements for each AMU, by month, for the entire fiscal year. Compute dock capability using the formula (number of O&M days) divided by (number of phase days) times (inspection cycle). Inspection dock capabilities is provided at the wing level and provided by the squadron performing inspections.

2.2.3.4. Sortie UTE Rates (N/A to MAF units). Compute UTE rates by month for the entire fiscal year for contracted (required) sorties and scheduled sorties using formula: (number of sorties per month) divided by (number of PAI aircraft).

2.2.4. Once compiled, the annual maintenance plan will be presented to the OG and MXG CCs (or equivalents) before being presented to the WG/CC for final approval. MOF PS&D will review the comprehensive package submitted to OSS Operations Flight scheduling section and provide feedback to AMU PS&D and MXG/CC if required. Final assessments of maintenance capabilities to support the operations “first look” projections are sent to AFMC/A4.

2.3. Flying Hour Allocation/Annual Maintenance Planning Cycle.

2.3.1. Flying Hour Allocation. Using the Lead Command Baseline Allocation message (provided by AFMC/A3), PS&D and OS/OSS scheduling provide affected work centers the following planning factors NLT 20 August each year, or within 10 working days after receipt of the flying hour allocations:

2.3.1.1. Updated capabilities computed by MMA, provided by PS&D.

2.3.1.2. Required flying hours and estimated sorties and missions, provided by OSS, in monthly increments.

2.3.1.3. Flying days in each month, provided by OSS.

2.3.1.4. Aircraft and aircrew alert requirements, provided by OSS.

2.3.1.5. Known and projected TDY and special mission requirements, provided by OSS.

2.3.1.6. PDM schedule, provided by PS&D.

2.3.1.7. Configuration and munitions requirements, provided by OSS.

2.3.1.8. Special mission and test requirements.

2.3.2. NLT 1 September, or within 10 working days after receipt of the planning factors, maintenance supervision provides PS&D, SQ/CCs, and OSS operations scheduling the following planning factors:

2.3.2.1. Estimated number of aircraft available by month, taking into consideration aircraft required for training.

2.3.2.2. A projected airframe capability statement.

2.3.2.3. Forecasted personnel capability, taking into consideration required annual training for maintenance personnel. (Not applicable to contract maintenance organizations).

2.3.2.4. The number of supportable sorties for each month.

2.3.2.5. An estimated monthly attrition factor (N/A to MAF units) provided by MMA. This factor combines operations, weather and materiel (maintenance and supply) factors. Maintenance is responsible for adding the attrition factor to operational requirements.

2.3.2.6. A recommended block scheduling pattern.

2.3.2.7. A statement of limitations.

2.3.3. The OSS Operations Flight commander consolidates unit inputs into a final package and coordinates it through the OG and MXG CCs before final approval from the WG/CC. MOF PS&D will review the package and provide feedback to AMU PS&D and MXG/CC, if required. The final approved package constitutes the wing annual Flying Hour Program (FHP). A copy of the approved annual plan and changes thereafter will be forwarded to MOF PS&D and the Analysis section. Units will submit the annual FHP (contract) to AFMC/A3 and AFMC/A4M around the 15th of September.

2.3.4. The annual plan will show the number of flying hours projected to fly by aircraft Mission Design Series (MDS). Flying hours will be subdivided into planned test/test support, test pilot school, and an "all other" category (i.e. proficiency, maintenance, ferry, etc.).

2.4. Quarterly Scheduling. The quarterly plan applies to Test Wing training missions and all known test missions.

2.4.1. Quarterly planning starts with the operational requirements for the flying hours, UTE rate, and airframe availability, alert and other related scheduling data. The OS operations officer provides these requirements to maintenance supervision and PS&D NLT 25 days before the beginning of the quarter. Maintenance supervision and the OS operations officer discuss these requirements at the scheduling meeting before the quarter being planned.

2.4.1.1. The Test Wing scheduling office will use the following priority as a guide to determine which objectives to support if a lack of resources prevents meeting requirements such as: alert commitments, HHQ directed missions, training, and test and test support missions.

2.4.2. The unit's rolling 3-month maintenance plan briefed each month meets the intent of the quarterly scheduling process. The meeting may be held in conjunction with the weekly or as a separate scheduling meeting. The plan will be posted so it may be viewed by both maintenance and operations.

2.5. Monthly Scheduling Procedure. Monthly scheduling will be accomplished IAW AFI 21-101 AFMC Sup 1.

2.6. Weekly Scheduling Procedure. Weekly scheduling will be accomplished IAW AFI 21-101 AFMC Sup 1.

2.6.1. Also included in the weekly flying and maintenance schedule will be:

2.6.1.1. Sortie sequence numbers, aircraft tail numbers (primary and spares), scheduled take-off and landing times, aircraft or equipment scheduled use times, configurations, fuel loads and special equipment requirements.

2.6.1.2. Scheduled maintenance actions by aircraft and equipment serial number to include inspections, TCTOs, time changes, contract and depot inputs, engine changes, washes or corrosion control, documents review, deferred discrepancies, modifications and hours remaining to phase.

2.6.2. Changes to the Weekly Schedule.

2.6.2.1. Pen-and-Ink. **The pen-and-ink AF Form 2407, *Weekly/Daily Flying Schedule Coordination* is not intended to be used as a tool to extend the scheduling process by another day.** Pen-and-ink changes made to next week's schedule, submitted to the MOC by 1600 hours Friday or at the daily maintenance scheduling/production meeting, whichever occurs first are authorized (exception: NLT 2 hours after the last landing during printed wing night flying weeks). They are non-reportable and become part of the printed weekly flying schedule. An AF Form 2407 is required stating the changes are pen-and-ink. **NOTE:** The intent of the pen-and-ink AF Form 2407 is to correct minor errors and not complete revisions of the previously Wing/CC approved schedule.

2.7. AF Form 2407 Approval Authority. Any changes to the printed schedule will require an AF Form 2407 with the following exceptions: a change to the original printed takeoff or landing time of 30 minutes or less; a change of aircrew names, ranges, or airspace; or a change arising after the first crew ready time for the squadron's current day's scheduled flying window.

2.7.1. Changes made during the daily scheduling meeting also require an AF Form 2407.

2.7.2. All AF Form 2407 changes that add aircraft or sorties or increase the flying window require both OG and MXG commander (or designated group level representative) approval. MXG/CD or equivalent will approve changes to the final schedule and coordinate through affected AMXS Operations Officer/MX SUPT, AMU OIC/SUPT, MXS Operations Officer/MX SUPT, operations group representative, maintenance group, and wing staff agencies (e.g. MOC, PS&D, Analysis, etc.) using an AF Form 2407. MOC will coordinate higher headquarters directed taskings that require immediate execution.

2.7.2.1. AFMC units are authorized to use the Edwards Scheduling System (ESS) and Center Scheduling Enterprise (CSE) in recording and coordinating changes to the weekly schedule in place of the AF Form 2407. Electronic coordination is acceptable provided receipt is acknowledged and sender enters the name of the person notified, along with the

date/time of notification, and logged in accordance with the requirements on the AF Form 2407.

2.8. Scheduling Procedure. Units must effectively plan and execute operations, test and maintenance schedules. Each day, no later than 1600 local time, the OG/CC and MXG/CC/CL or their designated group representative will review the flying and maintenance schedule, agree on revisions, and coordinate with other agencies to confirm the next day's activities. Use AF Form 2407 or authorized automated system in coordinating the final schedule through the affected AMXS Operations Officer/MX SUPT, AMU OIC/SUPT, MXS Operations Officer/MX SUPT, operations group representative, maintenance group, and wing staff agencies. (i.e. MOC, PS&D, Analysis, etc.). Develop flying schedules IAW AFI 21-101.

2.8.1. The finalized flying schedule will include, at a minimum, the following details:

- 2.8.1.1. Aircraft tail numbers.
- 2.8.1.2. Aircraft takeoff and landing times.
- 2.8.1.3. Configuration requirements.
- 2.8.1.4. Munitions requirements.
- 2.8.1.5. Fuel loads.
- 2.8.1.6. Special or peculiar test support requirements.
- 2.8.1.7. Special or peculiar mission support requirements.
- 2.8.1.8. Off station sorties.
- 2.8.1.9. On equipment training requirements.
- 2.8.1.10. Other special requirements (i.e. ground test/mount).

2.8.2. Maintenance Debrief will load all sorties considered "flown as scheduled" (e.g. Functional Check Flights (FCF)/Operational Check Flight (OCF), Ferry and cross country returns) in the MIS.

2.8.3. Finalize aircraft and equipment configurations at the daily maintenance scheduling meeting and document it on an AF Form 2407. To prevent excessive expenditures of work hours, configuration changes made after the daily maintenance scheduling meeting and prior to the first crew ready time the next day, require an AF Form 2407 coordinated through the required agencies.

Chapter 3

TOTAL SCHEDULING EFFECTIVENESS

3.1. Purpose. This chapter defines flying schedule deviations and provides formulas for computing Total Scheduling Effectiveness (TSE). A cornerstone of successful flying scheduling and execution is an understanding of how the schedule is executed versus how it was planned to be executed. These differences in scheduled versus actual events, are only recorded in the execution phase of the scheduling process and are called deviations. Deviation data must be recorded so that follow-up analysis can identify appropriate corrective actions, if any. Deviation data recording and analysis is the beginning of the process that will, in the end, improve unit's flying operations. The unit is responsible for documenting deviations to the flying schedule and determining the cause for each deviation. Deviations must be coordinated with the appropriate agency before being assigned to a specific category. Schedule deviations that result from a sequence of events will be assigned a primary cause. A determination of the primary cause will be made by the parties involved to arrive at a unit position. The Operations representative and the AMU/AMXS MS will monitor deviations to ensure they meet the criteria in this publication. When conflicts arise, leadership of involved units will resolve them at the lowest level. All deviations will be recorded as described in this publication. Although deviations are a key indicator with regards to scheduling effectiveness, they are sometimes necessary to meet dynamic mission sets that cannot be predicted, such as some flight test activities. Although every attempt will be made to properly schedule and reduce deviations, this metric must be viewed in conjunction with additional mission execution metrics to allow a more comprehensive assessment of maintenance effectiveness.

3.2. Requirements. Total scheduling effectiveness computation and deviation recording are required for all AFMC assigned aircraft. Reporting procedures are contained in para 3.5.

3.3. Deviations.

3.3.1. Deviations apply to the approved weekly flying schedule. Multiple deviations will not be recorded against a single line entry except for (a) additions that air abort, (b) additions that cancel or ground abort, (c) added sorties that take-off late, and (d) late take-offs that air abort. The AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document* is the official source document for takeoff and landing data. For **all deviations**, the person recording the deviations in the MIS will provide a detailed explanation in the remarks section and a Job Control Number/Event ID in IMDS (CAMS) screen 350, if applicable. Schedule deviations fall into one of the following categories:

3.3.2. Ground Deviations. Ground deviations are events occurring before aircraft takeoff or scheduled ground test. All ground deviations are recorded and used in total scheduling effectiveness calculations unless otherwise noted. FCF and OCF whose primary purpose is to perform maintenance checks and sorties originating off-station without home-unit support will be considered "flown as scheduled" without recording deviations with the exception of aborts. Specific ground deviations are:

3.3.2.1. **Addition (AD).** An aircraft or event (including both sortie and ground test) added to the approved flying schedule. Will be recorded against the agency (OP, MX, HQ, Test Agency, etc.) requesting the additional sortie or aircraft.

3.3.2.2. **Cancellation (CX).** A sortie or ground-test event that is removed from the printed schedule for any reason before crew ready time. Cancellations occur when it is determined the originally scheduled mission cannot be met. For training sorties, if the sortie can launch and recover during the squadron's flying window and perform its original mission with the original crew, a cancellation is not recorded. If any sortie does not launch within the late takeoff criteria, a late takeoff is recorded. Any cancellations will be recorded against the agency (OP, MX, HQ, Test Agency, etc.) that is responsible for the cancellation.

3.3.2.3. **Early Takeoff (ET).** An early takeoff is a scheduled sortie launching more than 30 minutes prior to the published takeoff time.

3.3.2.4. **Ground Abort (GA).** A ground abort is an event, after crew show, which prevents a "crew ready" aircraft on a scheduled or added sortie event from becoming airborne. Ground aborts will be recorded against the responsible agency or condition that caused the abort. Ground aborts are categorized as maintenance (GAA/GAB/GAC), operations, higher headquarters, weather, sympathy, project, other, etc.

3.3.2.5. **Late Takeoff (LT).** A late takeoff occurs when a scheduled sortie becomes airborne more than 30 minutes after the scheduled takeoff time.

3.3.2.6. **Spare (SP).** A spare is a designated aircraft on the printed schedule to be used in case a scheduled aircraft cannot fly its scheduled sortie. Spares can include aircraft that have canceled, aborted, flown earlier or an aircraft released after FCF/OCF. The aircraft production supervisor will manage scheduling and use of spare aircraft. Do not count printed spares flown in scheduled lines as deviations when computing TSE. Spare aircraft requirements are based on projected test mission needs. The following factors are used to determine spares and are not hard limits but guidelines, and as such, it is up to the AMU to actually schedule what it can support.

3.3.2.6.1. The spare requirements may be canceled (when deviations are not used for computing TSE) if test requirements are accomplished/met.

3.3.2.6.2. Additional spares are authorized to support HHQ taskings and special missions (if required by tasking).

3.3.2.7. **Interchange/Tail Number Swap (TS).** Interchanges are changes to the printed flying schedule involving aircraft tail numbers printed on the flying schedule. Interchanges may be used to prevent reconfigurations and unnecessary expenditures of man-hours, or to replace a printed tail number when that aircraft will not be mission capable in time to accomplish the flight. Every effort is made to make the aircraft interchanges at the daily maintenance production meeting the day prior to the aircraft scheduled flight and entered on the AF Form 2407. All interchanges made at the daily production meeting are entered on an AF Form 2407 for audit and analysis purposes. Interchanges between aircraft on the flying schedule, including FCF/OCF flown, will not be recorded as deviations. Interchange procedures do not apply to aircraft not on the flying schedule. Interchanges include the following:

3.3.2.7.1. Changing aircraft in printed line numbers with printed spare aircraft.

3.3.2.7.2. Changing aircraft in printed line numbers to different printed line numbers (tail number swap).

3.3.2.7.3. Changing aircraft not on the printed schedule that have flown that day, with aircraft on the printed schedule.

3.3.2.7.4. Interchanges may be made up to the crew ready time. The MOC must be notified of all interchanges for proper coordination with affected work centers. Once crew ready time has passed, normal deviation recording will apply. Interchanges made after the daily maintenance meeting and prior to the first crew-ready time require coordination for support from agencies outside the flying and maintenance squadron. Record all interchanges in the MIS. Do not count Interchanges/Tail Number Swaps as deviations when computing TSE.

3.3.3. **Air Deviations.** Air deviations are events occurring after takeoff. They are recorded in the MIS, but are not included in total scheduling effectiveness calculations. Air deviations fall into the following categories:

3.3.3.1. **Air Abort (AA).** An aircraft/sortie that cannot complete its primary or alternate mission for any reason. Air aborts are considered a sortie flown when reporting total sorties flown. Air aborts will be recorded against the agency or condition that caused the aborted mission. An air abort will not be recorded when malfunctions occur during the "Before Takeoff Checklist" portion of helicopter sorties. Air aborts caused by specific test mission will not be counted in abort rate computations.

NOTE: Effective sortie decisions will be made by operations.

3.3.3.2. **Air Abort, IFE (AI).** An air aborted aircraft/sortie with a situation resulting in an in-flight emergency declared by the aircrew.

3.3.3.3. **IFE (FE).** An aircraft/sortie with a situation resulting in an in-flight emergency declared by the aircrew after the mission is accomplished.

3.3.3.4. **Late Landing (LL).** An aircraft/sortie landing more than 15 minutes after the scheduled landing time. If the sortie originated on time, record any subsequent late takeoff or cancellation against the agency that caused the late landing. If the extended sortie did not originate on time, record any subsequent sortie deviation against the agency that caused the original delay. Late landings are not included in TSE calculations.

3.3.3.5. **Early Landing (EL).** An early landing is an aircraft/sortie landing more than 30 minutes before the scheduled landing time. Early Landing deviations are not used when computing TSE.

3.4. **Deviation Causes.** Deviations will be assigned a primary cause. The WG/CC will resolve questions concerning assigning deviations between maintenance and operations. The OS/CC, AMXS/CC, and LRS/ CC will resolve questions concerning deviations involving supply and POL. Deviations will be assigned one of the following causes:

3.4.1. **Maintenance (MT).** Deviations resulting from aircraft discrepancies, unscheduled maintenance, or for actions taken for maintenance consideration. **NOTE:** Maintenance-related ground aborts will use one of the "GAX" cause codes (See Para 6.2.4).

3.4.2. Operations (OP). Deviations resulting from operations/aircrew actions, mission changes causing an early/late takeoff, or cancellation including substitution/aircrew illness, and over-stressing the aircraft. OP are also deviations resulting from unit controlled operations factors including those caused by mission/load planning, life support, intelligence, base operations, and passengers.

3.4.3. Project/Test Agency (PJ). Deviations to flight that result from rescheduling, reconfiguration, test item malfunctions, failures, or necessary adjustments to equipment undergoing tests or evaluations associated with Operational Testing and Evaluation (OT&E). Development Testing and Evaluation (DT&E), or Initial Operational Testing and Evaluation (IOT&E).

3.4.4. Supply (SU). Deviations resulting from a Partially Mission Capable Supply (PMCS) or Not Mission Capable Supply (NMCS) condition or for late Supply or Petroleum Oil Lubricant (POL) delivery. Contract Logistics Support (CLS) items are included. In accordance with local MOAs/operating instructions. **NOTE:** The actual time required for installation will be considered.

3.4.5. Higher Headquarters (HHQ). Deviations resulting from a higher headquarters tasking including closing of low level routes/ranges or external customer driven mission change. When an aircraft that was scheduled for a higher headquarters directed off-base mission is replaced by a spare refer to paragraphs 3.3.2.6. and 3.3.2.7. for unit options.

3.4.6. Weather (WX). Deviations for aircraft which takeoff early, late, abort, or are added or canceled due to weather conditions. For example, if an aircraft taxied to the end of runway and the wing commander cancels all flying due to weather, the aircraft is a weather abort. Sorties/Aircraft cancelled prior to crew show are weather cancels.

3.4.7. Sympathy (SY). Deviations occurring when a event of two or more aircraft, under the command of a flight leader or instructor pilot are canceled, aborted, or late due to a cancellation, abort, or delay of one of the aircraft in the flight or a supporting flight. Events, which are to replace sympathy aborts or cancellations on the same day, will be recorded as sympathy additions. Events lost caused by the aircraft's scheduled mated tanker/receiver/mission event will be recorded as sympathy. Examples of mission events are: loss of release times, Airborne Warning and Control System (AWACS) support, Minimum Interval Take Off (MITO) causing takeoff delay or cancellation, or for another unit's or command's support should be coded as sympathy deviations.

NOTE: Deviations caused by aircraft/missions earlier scheduled lines will be assigned to the cause of the earlier deviation, not sympathy (SY).

3.4.8. Air Traffic Control (AT). Deviations resulting from air traffic control problems (for example, flight clearance delays, tower communication failure, conflicting air traffic, runway change, or runway closure).

3.4.9. Contractor Support (CS). A deviation resulting from a test or system contractor not being able to support the mission in accordance with the requirements of the contract.

3.4.10. Range Availability (RN). A deviation resulting from the Range not being available.

3.4.11. Other (OT). Deviations resulting from unusual circumstances not covered by other causes listed. OT may include:

3.4.11.1. Unusual circumstances (e.g., bird strikes, damage during air refueling, unscheduled exercises) may use this code.

3.4.11.2. Equipment, non-AFMC. Deviations caused by National Airborne Operations Center NAOC) or Air Intelligence Agency (AIA), and other non-AFMC support and equipment.

3.4.11.3. When an aircraft is off station and cannot return for its scheduled sortie/mission, a deviation will be recorded for the reasons the aircraft was unable to return. The reasons will be specific (maintenance, operations, weather, etc.). A printed spare aircraft may be used for any sorties scheduled for the aircraft that did not return.

3.4.11.4. Ferry Sorties. Ferry sortie requirement too late for inclusion in the flying schedule will be documented as a new line for the day and **“flown as scheduled”**.

3.4.11.5. Hot Spare Aircraft. Properly configured aerospace vehicle that is listed on the flying schedule as a spare with a specific takeoff time and not utilized. If not used will be recorded as a cancel other.

3.4.11.6. Airborne Instrumentation.

3.4.11.7. Laboratories.

3.4.12. **Exercise, Higher Headquarters (EXH).** Deviations resulting from higher headquarters directed exercises, including alarm/force protection conditions. Deviations in this category will not be included in TSE calculations.

3.4.13. **Exercise, Local (EXL).** Deviations resulting from wing/unit directed exercises, including alarm/force protection conditions. Deviations in this category will not be included in TSE calculations.

3.4.14. **Special Instrumentation (SI).** Deviations that directly result from issues with SI support.

3.5. Rules for Reporting Schedule Deviations. The unit is responsible for documenting deviations to the weekly flying schedule and determining the cause for each deviation. Deviations must be coordinated with the appropriate agency before being assigned to a specific category. The operations representative and AMU/AMXS MS will monitor deviations to make sure they meet the criteria in this instruction. When disparities exist, they will be referred to the OG and MXG CCs or designated representative for resolution. Schedule deviations that result from a sequence of events will be assigned a primary cause. A determination of the primary cause will be decided upon by all parties involved to arrive at a unit position.

3.6. Scheduling Exceptions.

3.6.1. **Adverse Weather.** Units/flying squadron(s) may add sorties to the flying schedule to make up for weather losses. Sorties will only be added to the schedule when the planned weather attrition for the month has been exceeded for that month. The number of sorties added will not exceed the difference between the planned weather attrition and actual weather losses. Weather attrition will be computed by the MMA Section. (Example: Planned weather attrition for the month equals 30 sorties. On the 20th of the month 40 sorties are lost. Ten non-chargeable sorties may be added. The maintenance schedule and

the ability of maintenance to support the additional requirements must be carefully considered before adding sorties in accordance with paragraph 2.7.2.

3.6.2. Unscheduled Tasking. When a unit is tasked with an unscheduled higher headquarters tasking or self-initiated tasking (mobility exercises or weather evacuations), or other services tasking which significantly impacts the flying schedule, the printed schedule may be revised or deleted from the MIS by AMU PS&D and replaced with a new schedule without recording deviations. For weather evacuations, the schedule will be cancelled in the MIS, not deleted, so the data is available for historical attrition.

NOTE: Local unscheduled tasking will not be used solely to recoup sortie losses.

3.6.2.1. If the schedule is revised or canceled and reprinted, the following procedures will be used:

3.6.2.1.1. Follow normal deviation reporting procedures once the revised/reprinted schedule is finalized. The revised schedule will be finalized a minimum of 2 hours before the first scheduled launch.

3.6.2.1.2. Once the tasking terminates, the original schedule may be used or it may be revised or reprinted for the tasking period, as required. Normal deviation reporting is to be used once the revised or reprinted schedule is finalized.

3.6.2.1.3. Normal deviation reporting procedures will be followed after a takeoff time is established to a tasking by higher headquarters or other services.

3.7. Utilization Reporting. All aircraft flying hours are required to be reported in REMIS in accordance with AFI 21-103, *Equipment Inventory, Status and Utilization Reporting*. This requirement is not waived for contractor-maintained aircraft.

Chapter 4

MAINTENANCE SCHEDULING EFFECTIVENESS

4.1. Purpose. This chapter provides a means to measure maintenance management Effectiveness, reflected by how well the maintenance schedule is carried out. Maintenance efforts should be directed toward the timely accomplishment of all scheduled maintenance actions. The AFMC Maintenance Scheduling Effectiveness (MSE) goal is 95%.

4.2. Computations.

4.2.1. Scheduled maintenance events and respective weighted factor points in **Table 4.1** are used to compute the MSE rate. Credit is received for actions completed on, or prior to, the scheduled date as printed in the weekly schedule. The MIS database and the published schedule will be used to determine whether or not the maintenance actions were completed on-time. **EXCEPTION:** Phase/PE and ISO inspection, and all maintenance requiring more than 24 work hours to complete will be measured against the scheduled start time/date.

4.2.2. The MXG/CC may select additional areas (such as AGE, AIS, AME, etc.) for local scheduling effectiveness tracking. The unit will establish standards for these programs and develop a computation table in the format of **Table 4.1**. This data will not be included in aircraft maintenance scheduling effectiveness when reported to higher headquarters.

4.2.3. MOF PS&D will record maintenance scheduling deviations and forward the computations to MOF maintenance analysis weekly for publications in the monthly maintenance summary.

4.2.4. When a unit is tasked with a test acceleration, quick reaction test, unscheduled tasking, unannounced exercise/real world contingency, or higher headquarters exercise that significantly impacts the printed weekly maintenance schedule, the plan may be revised or reprinted without incurring deviations. Normal deviation reporting procedures will be followed once the revised or reprinted plan is finalized. The unaccomplished portion of the maintenance schedule that was revised will not be included in the scheduling effectiveness formula.

4.2.5. Establish local written procedures to ensure coordination of changed/cancelled/added scheduled maintenance.

4.2.6. Maintenance Scheduling Deviation Categories.

4.2.6.1. **Maintenance (MT).** Actions canceled or not completed as a result of adding aircraft to the flying schedule, mismanagement, or a lack of manpower or equipment.

4.2.6.2. **Higher headquarters (HHQ).** Actions canceled or not completed as a result of higher headquarters tasking from outside of the wing.

4.2.6.3. **Weather (WX).** Actions canceled or not completed as a result of weather conditions.

4.2.6.4. **Supply (SU).** Actions canceled or not completed as a result of verified parts back order condition.

4.2.6.5. **Other (OT).** Actions canceled or not completed as a result of impounded aircraft (after the weekly schedule is published), major maintenance where technical data restrictions do not allow the scheduled maintenance, or aircraft is off-base and unable to return.

Table 4.1. Maintenance Scheduling Effectiveness Computation

Total Points Possible _____ Total Points Earned _____ FORMULA: Total Points Earned/Total Points Possible * 100 = Maintenance Scheduling Effectiveness Rate

Scheduled Maintenance Event	A Weighted Points	B Number of Events	C Points Possible (A x B)	D Events completed/ started as Scheduled *Note: Refer to Para 4.2.1	E Points Earned (A x D)
Transfer/Acceptance Inspections	6				
Periodic (PE)/Isochronal (ISO)/ Phase/Home Station Check/ Hourly Post flight	5				
Engine Change	4				
Time Change	4				
Time Compliance Technical Order (TCTO)	4				
Special Inspection	3				
Aircraft Records Review	3				
Training Aircraft	2				
Weapons Load Training (WLT)	2				
Field Training Detachment (FTD)	2				
Wash/Corrosion Control	2				
Deferred Discrepancy (DD)	1				

Chapter 5

TDY/DEPLOYED SORTIES

5.1. Purpose. This chapter establishes rules and procedures used in planning, executing, evaluating, and reporting of unit flying and maintenance schedules at deployed/TDY locations where unit maintenance is provided. Sorties flown at deployed/TDY locations where no parent unit maintenance is provided are considered off-station sorties. If parent unit support is deployed, this is considered the same as home station support and normal deviation reporting applies. Limited launch support is not considered parent unit maintenance.

5.2. General. Normal deviation reporting applies to deployed operations except as noted in this chapter. Data from deployed operations will be transmitted or forwarded back to home station.

5.3. Scheduling. In addition to the procedures established at home station for scheduling and reporting, deployed units will use the following procedures when developing a flying schedule and reporting deviations:

5.3.1. Separate block(s) of sortie sequence numbers will be assigned for deployment/TDY location(s).

5.3.2. Additions and cancellations at deployed/TDY locations, which are required to accomplish specific test and aircrew training requirements and make optimum use of available range time, are considered flown as scheduled. This does not relieve operations and maintenance from developing a viable and realistic flying schedule at the deployed location. The primary purpose of this flexibility is to allow the unit to make up non-effective sorties to ensure accomplishment of the training plan. Procedures for changing the flying schedule in [Chapter 2](#) apply to deployment/TDY location flying and maintenance schedules. Additions and cancellations caused by ineffective planning are recorded.

5.3.3. Sorties scheduled at other than home station are not required to be input into the home station's operations scheduling system to be counted as scheduled sorties. Once tail numbers are plugged in at the daily meeting; this becomes the "firm schedule" and deviations are reported from that point on.

5.4. Deployed/TDY Daily Activity Report. Required information for deployed/TDY AFMC units will be transmitted to home station IAW applicable unit deployment/TDY plans.

5.5. Off-Station Sorties. Those sorties flown from other than home station and parent unit maintenance are not provided (e.g., cross-country sorties). When an aircraft is off-station and cannot return to home station for its scheduled sortie, a deviation will be recorded for the reason the aircraft was unable to return. The reasons will be specific, i.e., maintenance, operations, weather, etc.

NOTE: If the off-station aircraft can fly its scheduled mission from its location, no deviation is recorded

Chapter 6

SCHEDULING REPORTING PROCEDURES

6.1. Purpose. This chapter provides instructions on flying scheduling reporting procedures. The flying schedule must be loaded into the MIS to track scheduling and deviation data. Once loaded, the mission schedule or proposed maintenance plan background programs will provide base-level retrieval of flying and maintenance schedule information, and will complete higher headquarters reporting of aircraft utilization.

6.2. Responsibilities.

6.2.1. The MXG/CC will ensure procedures are established to verify the accuracy of all scheduling and deviation data.

6.2.2. The OG and MXG CCs or their designated group representative will publish the flying schedule IAW [Chapter 2](#) of this publication on AF Forms 2400 series or computer generated forms. Units will load changes to the flying schedule into the MIS by 1600L one workday prior to date of execution.

6.2.3. The Maintenance Operations Center (MOC) will review the previous day's activity reports to ensure accurate deviation accounting and reporting. The MOC will record additions, cancellations before crew show, interchanges, and the use of spare aircraft as deviations occur. The debrief section will record, late and early takeoffs and landing aborts, and in-flight emergency incidents during the automated debriefing process. The MOC will coordinate with the squadron/AMU on all changes and deviations to the flying schedule to assist in determining correct debriefing status codes. The MOC will provide sortie sequence numbers and sortie numbers to the squadron/AMU for all additions and cross-country sorties. Sortie numbers assigned to a specific tail number must be in sequential order (for example sortie number 101 must be used on a specific tail number before sortie number 102). Unique sortie sequence numbers will be developed for deployed sorties.

6.2.4. **Cause Code.** Enter one of the following codes to indicate the reason for a deviation or the agency, which caused a deviation.

CODE FUNCTION

ATx	Air Traffic
EXH	Exercise, HHQ
EXL	Exercise, Local
GAA	Ground Abort, before engine start, maintenance
GAB	Ground Abort, after engine start, before taxi, maintenance
GAC	Ground Abort, after taxi, maintenance
GAT	Ground Abort, test induced
HQT	Higher Headquarters, MAJCOM (non-exercise)
HQN	Higher Headquarters, NAF (non-exercise)
HQP	Higher Headquarters, other (non-exercise)
MTx	Maintenance
OPx	Operations

SIx	Special Instrumentation
SUx	Supply
SYx	Sympathy
RNx.	Range
WXx	Weather
OTx	Other
PJx.	Project/Test Agency
CSx.	Contractor Support

Chapter 7

ATTRITION

7.1. Attrition. Attrition factors represent historical percentage of scheduled sorties lost to causes outside unit control. Maintenance and operations schedulers add attrition sorties to monthly contracts to ensure mission goals are met. Operations and maintenance personnel must ensure the contract includes flexibility to accept attrition requirements during acquisition planning. Units may make a conscious decision, with MXG/CC approval, to use different attrition factors from statistical attrition rates calculated by MMA.

7.1.1. Attrition sorties are not substitutes for capability shortfalls, they are additive to the contract to ensure mission goals are met. The monthly flying and maintenance plan will clearly identify attrition sorties for management purposes. If attrition is less or more than planned, adjustments to the weekly flying and maintenance schedule will be made to prevent over-extending maintenance or exceeding the unit's contract. A sortie lost will normally be flown in the same month the loss occurred. If at the end of a quarter combined losses exceed attrition figures, the OG and MXG CCs will negotiate a resolution to the shortfall.

7.1.2. The factors used to compute attrition will be MXx, OPx, SUx, WXx, ATx, SYx, OTx, EXH, EXL, and HQx sortie losses. Attrition factors are used to compensate for non-unit controlled factors. Spares are used to compensate for unit controlled factors. Attrition and spare factors will be computed for and applied to each flying squadron/AMU. Monthly statistical attrition anomalies should be identified, documented and factored out of attrition calculations if necessary. MMA will compute attrition factors monthly for each OS/AMU and provide the results to MOF PS&D for dissemination to the OS and AMU PS&D schedulers. During the annual first look, MMA will provide attrition factors by month for the entire next fiscal year.

NOTE: Attrition and spare factors need not be developed for test and evaluation (CB) possession identifier coded aircraft.

7.2. Attrition Factor Application.

7.2.1. Attrition computation is based on unit historical data from previous similar flying months. For example, when computing attrition for Jan 12, use historical data for Jan 11, Jan 10, Jan 09, Jan 08, Jan 07, etc. Use as much historical data as required ensuring seasonal variations are considered to determine a basis for attrition. When computing attrition, use the total sorties lost in a particular category. Do not use the difference between the sorties lost and those sorties added to make up for the losses. The formula for computing the attrition factor is Historical Sorties Lost divided by Historical Sorties Scheduled.

Table 7.1. Attrition Computation Example**Attrition Computation Example:****Sortie Losses:**

MX Sortie Losses	0.02
OP Sortie Losses	0.01
SU Sortie Losses	0.01
OT Sortie Losses	0.01
AT Sortie Losses	0.01
SY Sortie Losses	0.01
EXH Sortie Losses	0.00
EXL Sortie Losses	0.01
HQ Sortie Losses	0.01
Sortie Losses attrition factor	0.09
WX Sortie Losses	0.03
Total attrition factor	0.12
Overall attrition factor is	0.12 or 12 %

7.2.2. Sample Application of Total Attrition Factor:

Sorties Required 1,000 Subtract attrition factor from 1 ($1 - .12$) = 0.88

Divide 1,000 by 0.88 Required sorties to schedule 1,136.36 , round up to 1,137.0

Based on historical attrition of 12%, the unit can expect to lose 137 sorties to meet the required 1,000 sorties.

T. GLENN DAVIS, Brigadier General, USAF
Director of Logistics and Sustainment

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING DOCUMENTS*****References***

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Abbreviations and Acronyms

AA—Air Abort

AD—Addition

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFPD—Air Force Policy Directive

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AI—Air Abort, IFE

AME—Alternate Mission Equipment

AMU—Aircraft Maintenance Unit

AMXS—Aircraft Maintenance Squadron

APU—Auxiliary Power Unit

AT or ATC—Air Traffic Control

Atx—Air Traffic

AWACS—Airborne Warning and Control System

BAI—Backup Aerospace Vehicle Inventory
C—Recorded Deviation
CC—Commander
CLS—Contract Logistics Support
CS—Contractor Support
CSx—Contractor Support
CX—Cancellation
DD—Delayed Discrepancy
DT&E—Development Testing and Evaluation
EL—Early Landing
ET—Early Takeoff
EXH—Exercise, Higher Headquarters
EXL—Exercise, Local
FAA—Federal Aviation Administration
FCF—Functional Check Flight
FE—IFE
FHP—Flying Hour Program
FI—In-Flight Incident
FOL—Forward Operating Location
GA—Ground Abort
GAA—Ground Abort, Before Engine Start
GAB—Ground Abort, After Engine Start, Before Taxi
GAC—Ground Abort, After Taxi
GAC—Ground Abort, test induced
HHQ—Higher Headquarters
HPO—High Performance Organizations
HQ—Headquarters
HQN—Higher Headquarters, NAF
HQP—Higher Headquarters, other
HQT—Higher Headquarters, MAJCOM
IAW—In Accordance With
IFE—In-Flight Emergency

IOT&E—Initial Operational Testing and Evaluation
ISO—Isochronal
LL—Late Landing
LT—Late Takeoff
MAJCOM—Major Command
MDS—Mission Design Series
MITO—Minimum Interval Take Off
MOC—Maintenance Operations Center
MOF—Maintenance Operations Flight
MOO—Maintenance Operations Officer
MS—Maintenance Supervision
MT—Maintenance
Mtx—Maintenance
MXG—Maintenance Group
MXS MS—Maintenance Squadron Maintenance Supervision
NLT—No Later Than
NMCS—Not Mission Capable Supply
OCF—Operational Check Flight
OG—Operations Group
O&M—Operations and Maintenance
OP or OPS—Operations
OPx—Operations
OS—Operations Squadron
OSS—Operations Support Squadron
OT—Other
Otx—Other
OT&E—Operational Testing and Evaluation
PAI—Primary Aerospace Vehicle Inventory
PDM—Programmed Depot Maintenance
PE—Periodic Inspection
PJ—Project/Test Agency
PJx—Project/Test Agency

PMAI—Primary Mission Aerospace Vehicle Inventory

PMCS—Partially Mission Capable Supply

POL—Petroleum, Oil, and Lubricants

PRA—Planning Requirements

PS&D—Plans, Scheduling, and Documentation

QA—Quality Assurance

RN—Range Availability

RNx—Range

SE—Support Equipment

SG—Support Group

SI—Special Instrumentation

SP—Spare

SU—Supply

Sux—Supply

SY—Sympathy

Syx—Sympathy

TCTO—Time Compliance Technical Order

TDY—Temporary Duty

TO—Technical Order

TRAP—Tanks, Racks, Adapters, and Pylons

TS—Tail Number Swap (“Tail Swap”)

UTE—Utilization Rate

WLT—Weapons Load Training

WRM—War Reserve Materiel

WX—Weather

Wxx—Weather

Terms

Addition—An increase in sorties or aircraft added to the printed flying schedule.

Air Abort—An airborne aircraft that cannot complete its primary or alternate mission.

Air Deviation Code—A deviation from the scheduled sortie flight plan occurring after aircraft takeoff.

Cancellation—A sortie or ground test event that is removed from the printed schedule for any reason.

Continuation Sortie—A scheduled sortie containing scheduled operation stops. When a crew completes their training/mission and performs an operation stop, the engines/APU remains running and maintenance does not service the aircraft. The aircraft can subsequently be launched without the participation of maintenance personnel, except for a fire/safety observer. The prime purpose is to on/off load crew members. **EXCEPTION:** C-130 aircraft, engines may be shut down to upload/download paratroopers/ passengers. **NOTE:** N/A to fighter and attack aircraft.

Contract Logistics Support—Logistics support of DoD materiel performed under contract by commercial organizations. Support provided may include materiel and facilities, as well as additional services in the areas of supply and distribution, maintenance, training, software support and rebuild/ overhaul.

Crew Ready—An aircraft that has been properly inspected, fueled, required weapons loaded, necessary maintenance actions completed, the exceptional release signed off (for the first flight of the day) and the tail number passed to operations. **NOTE:** Units will develop and publish specific crew ready times for each assigned MDS as agreed upon by the OG and MXG CCs.

Crew Show—The time that the aircrew arrives at the aircraft.

Deployed/TDY Sorties—Sorties launched away from home base or with parent-unit maintenance provided. For the purpose of this instruction deployed/TDY sorties are considered home station sorties.

Daily Maintenance Scheduling Meeting—Meeting required by AFI 21-101 AFMC Sup1 to review the previous day's accomplishments, verify aircraft and equipment utilization and scheduled maintenance requirements for the current and next day, establish work priorities, and coordinate schedule changes.

Deviation—A departure from the printed flying schedule.

Early Takeoff—Scheduled sorties launched more than 30 minutes prior to scheduled takeoff. **NOTE:** Do not record early takeoff deviations for hot pit turn sorties.

Exercise—A unit or higher headquarters event designed to test or evaluate an organization's plans, procedures, and operational/maintenance capabilities

External Customer—Outside the control of the operational wing, a user of aircraft sorties that dictates, either partially or wholly, flying schedule execution, e.g., Joint Airborne Air Transportability Training (JA/ATT) users, Special Assignment Airlift Mission (SAAM) users or channel mission users.

Ferry Sortie—Those sorties flown to transfer an aircraft to or from a maintenance facility or to a new assignment, including intercommand, inter-unit transfers.

Flown as Scheduled Sortie—A sortie flown by a specific aircraft on the date and time indicated on the printed flying schedule, and those aircraft that are defined as "flown as scheduled" elsewhere in this instruction.

Functional Check Flight (FCF)—The flight of an aircraft, in accordance with the applicable dash -6 manual, to verify the airworthy condition of the aircraft.

Ground Abort—Event after crew show that prevents a "crew ready" aircraft from becoming airborne. Ground aborts are categorized as maintenance (GAA, GAB, GAC), operations, HHQ,

weather, sympathy, other, etc... The difference between a ground abort and a cancellation is after crew show it is a ground abort, before crew show it is a cancel.

Higher Headquarters—A controlling agency normally above wing level.

Home Station Sortie—Sorties launched from the home base or deployed/TDY locations where parent unit maintenance is provided.

Hot—Pit Turn—Refueling aircraft with engines running between sorties at a designated location with approved equipment IAW T.O. 00-25-172. Hot pit refueling provides minimum aircraft turnaround time and reduces fueling personnel and equipment support requirements.

In—Flight Emergency (IFE)—An airborne aircraft that encounters a situation or emergency that results in an IFE being declared by the aircrew. (Not a deviation, but will be recorded IAW [Chapter 3](#)).

Late Landing—Aircraft landing 15 minutes past its scheduled landing time. Does not apply to continuation sorties. If the sortie originated on time, record the subsequent late takeoff or cancellation against the agency that caused the late landing. If the extended sortie did not originate on time, record the subsequent sortie deviation against the agency that caused the original delay. Late landings are not included in TSE calculations.

Late Takeoff—Scheduled sortie launched more than 30 minutes after scheduled takeoff time.

Maintenance Scheduling Effectiveness—A measurement used to determine what percent of the scheduled maintenance actions were actually completed, or started in the event of events taking more than 24 work hours to complete, as scheduled in the weekly schedule.

Off—Station Sorties—Sorties flown away from home base (cross-country) and parent unit maintenance is not provided. This includes aircraft that divert or break off-station and parent unit maintenance is sent to repair and launch the aircraft. **NOTE:** Off-station sorties are considered flown as scheduled. Deviations incurred are not used in scheduling effectiveness or abort rate computations.

Operational Check Flight (OCF)—The first flight of an aircraft that has had extended downtime or extensive maintenance which does not require an FCF.

Project/Test Agency—--Deviations to flight that result from rescheduling, reconfiguration, test item malfunctions, failures, or necessary adjustments to equipment undergoing tests or evaluations associated with Operational Testing and Evaluation (OT&E).

Scheduled Sortie—An aircraft scheduled for flight by tail number confirmed on the flying schedule. FCF and OCF are excluded.

Scheduled Maintenance Action—A maintenance requirement printed in the weekly schedule.

Sortie— An aircraft sortie begins when the aircraft begins to move forward on takeoff or takes off vertically from rest at any point of support. It ends after airborne flight when the aircraft returns to the surface and either of the following conditions occur: a) the engines are stopped, or the aircraft is on the surface for five minutes, whichever occurs first; or, b) a change is made in the crew which enplanes or deplanes a crewmember. For logging aircrew proficiency training, on missions during which some crewmembers deplane and the remaining crew from the original takeoff re-launch, this may be considered to be a continuation of the original aircrew sortie.

Spare Aircraft—An aircraft specifically designated on the flying schedule to replace aircraft that cannot fly its sortie. Spares can include aircraft that have been canceled, aborted, flown an earlier sortie, or an aircraft that has been released after FCF/OCF. Do not count "Printed Spares" used as deviations when computing TSE.

Tail swap— Tail number swaps made to the flying schedule IAW paragraph 2.7. Includes swaps between printed aircraft on the same day, between printed aircraft and *printed* spare aircraft on the same day (before crew-ready only), or between printed aircraft and aircraft that have previously flown that day (cross country return, OCF, FCF, etc.).

Total Scheduling Effectiveness—Rate used to determine how well the flying schedule was executed.

Unscheduled Tasking—Tasking in which initial notification occurs after publication of the schedule.

Attachment 2

SCHEDULING EFFECTIVENESS COMPUTATION

A2.1. Test Schedule Effectiveness (TSE) Rate. Similar to the Flying Schedule Effectiveness for the CAF, TSE is a leading indicator and is a measure of how well the unit planned and executed the weekly flying and ground test event schedule. TSE is derived by comparing each day's deviations to the flying and ground test schedule. Deviations that decrease the TSE from 100 percent include: scheduled sorties/ground test events not accomplished because of maintenance, supply, operations, weather, HHQ, air traffic control, sympathy, or other reasons; scheduled events that actually start more than 30 minutes prior to scheduled start time; scheduled events that begin more than 30 minutes after their scheduled start time and events that are added to the schedule. Disruptions to the flying or ground test schedule, or constant configuration changes to test assets can cause turmoil on the flightline, send a ripple effect throughout other agencies, and adversely impact scheduled maintenance actions.

$$\text{TSE (\%)} = \frac{\text{Total Ground and Sortie Events Scheduled} - \text{Total Deviations}}{\text{Total Ground and Sortie Events Scheduled}} \times 100$$

A2.2. Maintenance Deviation Rate (MX Dev). Although all deviations to the test schedule are counted in the TSE calculation, the Maintenance Deviation Rate represents deviations to the flying/ground test schedule that are, for the most part, are within the maintenance community's control. All maintenance late take offs, ground aborts, cancellations, and maintenance additions are counted towards the rate. Although all deviations from the published schedule can cause turmoil on the flightline, maintenance supervision should focus on eliminating or minimizing schedule deviations due to maintenance.

$$\text{Maint Dev Rate (\%)} = \frac{\text{Total Maintenance Deviations}}{\text{Total Ground and Sortie Events Scheduled}} \times 100$$